



Integrating Watershed & Coastal Management Approaches in the Caribbean SIDS

Achieving more than the sum of their parts!





Characteristics of SIDS in the Caribbean

- Limited land mass
- Close geographic relationship between up-land and coastal areas



St. Martin



Characteristics of SIDS in the Caribbean

- Important terrestrial and marine ecosystems linkages



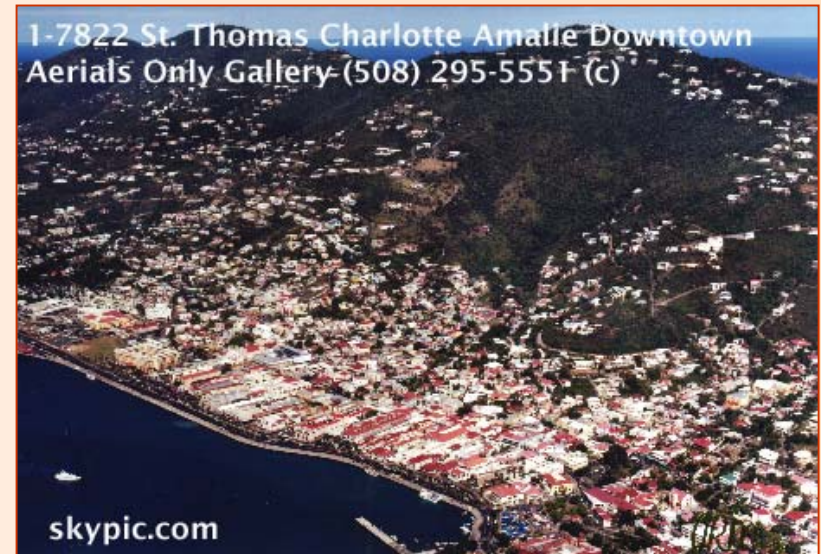
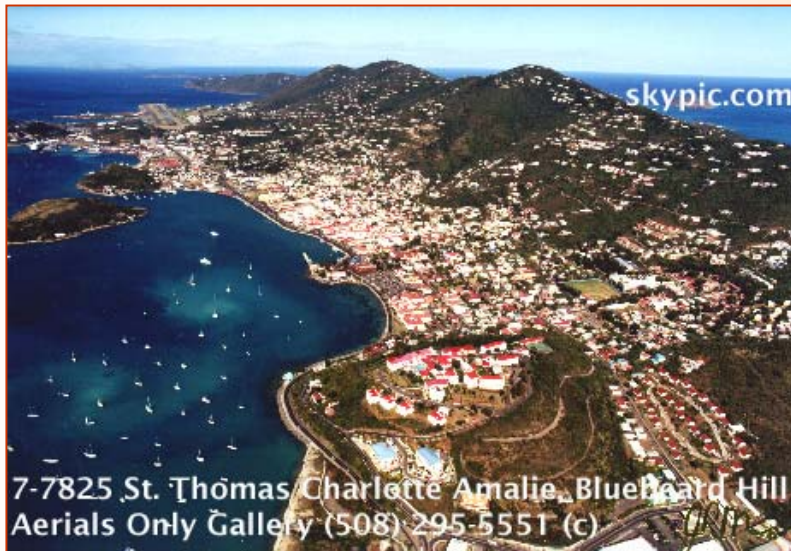
NW Puerto Rico – Landsat Image





Characteristics of SIDS in the Caribbean

- Intensive coastal-ribbon development
- Intensive Development in coastal areas and watersheds



St. Thomas, USVI





Characteristics of SIDS in the Caribbean

- Very open economies based on monocrop agriculture and tourism



Falmouth Beach, Antigua



Half Way Tree, St. Kitts





Characteristics of SIDS in the Caribbean

Increasing population density and growth rates

- Growth in population and life expectancy
- Greater coastal urbanization and population densities are the result of this population growth in the region with movements from the agricultural sector to coastal tourism.





Characteristics of SIDS in the Caribbean

Reliance on top-down approaches to planning and development

- Land-use planning in the Caribbean is often sector-oriented, with limited capacity to respond to local level needs and conditions
- Decision-making traditionally starts at the Cabinet (interministerial) level





Characteristics of SIDS in the Caribbean

- Lack of framework to accommodate bottom-up participation by stakeholders and community
- ICM and IWM have the same goals and objectives but they are viewed as different approaches and, sometimes, not complementary.





Needs to be Addressed

(from UN Programme of Action for SIDS: Toward Barbados+10, Mauritius)

- Climate change, natural and environmental disasters (e.g., coral bleaching, coastal erosion, SLR)
- Freshwater, land resources and waste management (e.g., loss of perviousness)
- Tourism, energy, and transport (e.g. over-development & pollution)
- Biodiversity, coastal and marine resources (e.g., protection of unique ecosystems)
- Isolation





ICM vs IWM

Definitions

Watershed Planning is a continuous management process **that lead to approaches and implementation [of management programs for the protection and sustainable use of water resources]** (adapted from the Center for Watershed Protection, 1998)

Integrated coastal management is a continuous and dynamic process **by which decisions are taken** for the sustainable use, development, and protection **of coastal and marine areas and resources** (Cicin-Sain & Knecht, 1998)



These are not new concepts –but very applicable to SIDS



Integration: ICM & IWM

Similar process and framework to achieve end results

- **Integration of different management strategies**
- **Integration across different economic sectors**
- **Integration across levels of government**
- **Integration across management tasks (e.g. planning and monitoring)**
- **Integration across disciplines**
- **Integration across private sector**





Watersheds and Coastal Zone

- River runoffs may have enormous impact on coastal ecosystems



Mouth of Polochic River (sediment plume), Guatemala



Añasco River, Puerto Rico.
Sedimentation on the West coast





Watersheds and Coastal Zone

- Small islands are specially vulnerable to the impacts of polluted runoff
- Coastal/Marine interaction affect the entire island



Coastal View, Antigua

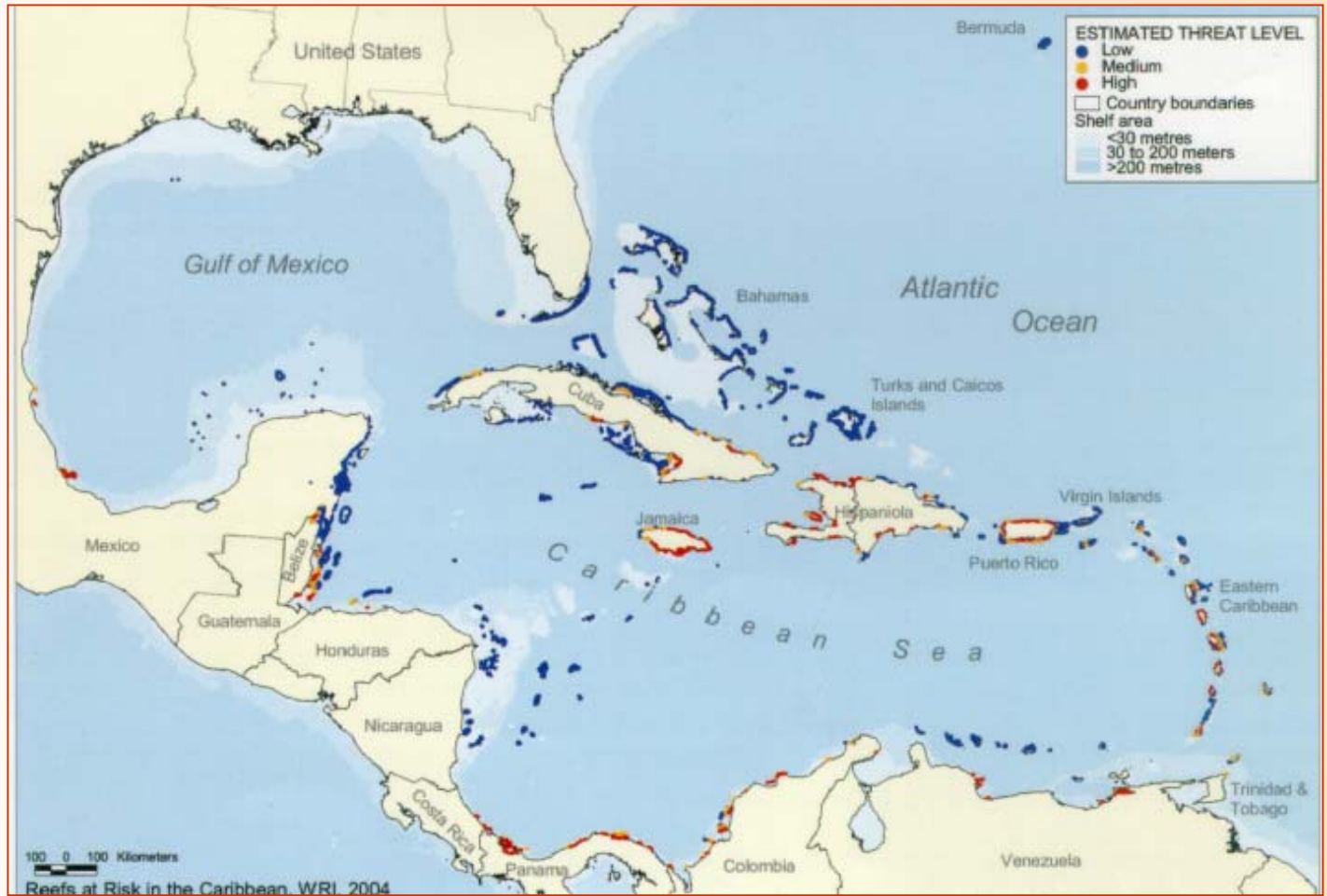


St. Thomas, USVI





Caribbean Reefs threatened LBS (sediment and pollution)





Caribbean Reefs threatened by Coastal Development





Potential Benefits of Adopting ICM & IWM in Caribbean SIDS

- IWM as elements of GPA-National Programs of Action (NPAs) can facilitate a paradigm shift in national development patterns (e.g., tourism) and regionally through the promotion of alternative tourism development designs such as development clusters & planned unit development (PUDs)
- Improve cooperation among regional governments to adopt a new development approach based on common issues and shared resources





Potential Benefits of Adopting ICM & IWM in Caribbean SIDS

- The development of NPAs can promote vertical and horizontal integration as follows:
 - Planning actions to address specific causes of environmental degradation or threats from land-based activities.
 - Designing flexible mechanisms to identify and address priority problems through partnerships and consensus among stakeholders.
 - Strengthening public sectors' ability to effectively respond to these causes and to ensure the sustainability of the actions and projects undertaken.
 - Mobilizing resources and partners, including the private sector, to implement specific projects.
 - Promoting awareness and understanding of the value, benefits and vulnerability of strategic coastal and marine environments





Example of ICM/IWM Integration

- After almost 20 years of the implementation of the U.S. CZM Program, in 1990 it became clear that there was a need to integrate the Clean Water Act and the CZM Act to develop a National Watershed Management Program
 - CZM was effective in regulating coastal activities (e.g. access to the coast, and land and water use conflicts)—but it was ineffective in controlling polluted runoff affecting coastal ecosystems





Example of Puerto Rico

- Puerto Rico has a nonpoint source of pollution control program that addresses the reauthorized CZM Act of 1990
- This program met all requirements by NOAA and EPA
- This program addresses:
 - Agriculture activities
 - New development planning
 - Watershed protection
 - Protection against erosion, and sediment and polluted runoff
 - Waste disposal
 - Roads, highways, and bridges construction
 - Marinas and other coastal recreational construction
 - Protection of buffer systems (e.g., Wetlands)
 - Management of Critical coastal areas
 - Monitoring





NOAA/GPA Node Office

- **Demonstration Projects**
- **Promotion of BMPs**
- **Promotion of GPA activities among U.S.-based donor institutions**
- **Outreach regarding GPA activities**
- **Coordination of NOAA staff and technical support**
- **Planning and implementation of partnership initiatives, especially design and development of NPAs**

